

## "BRITISH COLUMBIA"

## "Drowned by a Devil Fish"

"VICTORIA, September 27.—An Indian woman while bathing was pulled beneath the surface of the water by an octopus or devil fish and drowned. The body was discovered the following day in the bottom of the bay in the embrace of the monster. Indians dived down and with their knives severed the tentacles of the octopus and rescued the body. This is the first recorded instance of death from such a cause in this locality, but there have been several narrow escapes."

Exeter College, Oxford

H. N. MOSELEY

## The Earthworm in Relation to the Fertility of the Soil

IN NATURE, vol. xvii., p. 18, there is an account under the above heading of M. Hensen's investigations of this subject, to which I wish to add a note. He says the assertion that the earth-worms gnaw roots is not proved by any fact; roots gnawed by worms were never met with by him, and the contents of the intestines of the worms never included fresh pieces of plants. The experience of gardeners that the earth-worm injures pot plants may be based on the uncovering or mechanical tearing of the roots.

I should have thought that the universal experience of gardeners is that earth-worms never eat vegetable matter until it has decayed, and that their instinct leads them to draw the points of leaves as far as they can into their tubes for the purpose of setting up the decaying process, and likewise to sever the roots of pot plants with the same object. I can hardly understand how earth-worms have any mechanical means of severing the roots of plants except by gnawing.

But there is an omission in M. Hensen's account of the fertilisation of the subsoil by earth-worms which surprises me. He mentions but two ways in which this is effected, viz., by the opening of passages for the roots into deeper parts, and by the lining of these passages with humus.

I thought it was a well-known fact that worms, by means of their "casts," effect a complete *renversement* of the soil of meadow land down to a certain depth in the course of a few years. But whether well-known or not I met with a demonstration of this important fact in 1857. When putting down a considerable extent of iron fencing in the alluvial meadows near my house (consequent upon an exchange of land) I had occasion to cut a ditch two or three feet deep, and when the workmen had finished the ditch—a quarter of a mile long in all—I was astonished to see in one portion, of about sixty yards in length, a distinct and very even narrow line of coal-ashes mixed with small coal in the clean cut surface of the fine loam of the ditch face, perfectly parallel with the top sward. It immediately occurred to me that this was the work of the earth-worms, and upon inquiry I found that the farmer, who had occupied this land for many years, remembered having once, and only once, carted out some coal-ashes and spread it at this spot not many years before. I forget the exact number of years, but I believe it was about eighteen. I have a distinct recollection, however, that the depth of the line of coal-ashes below the surface was at least seven inches, and that this seemed to confirm the general belief that the depth to which the earth-worm usually burrows is about that amount. I may add that the colour of the loam above the line of coal-ashes was decidedly darker than of that below.

HENRY COOPER KEY

Stretton Rectory, Hereford, November 2

IN NATURE, vol. xvii., p. 18, some details are given of observations made by M. Hensen on the relation of the earth-worm to the fertility of the ground. He has observed, as everyone must have observed, that the earthworm during night draws into its tube or hole the loose leaves and fibres which may be lying about. But this operation of the earthworm has a significance in relation to the vegetable world of even a profounder kind than that of the fertilisation of the soil. Some months ago, in searching for young ash plants with three cotyledons, I found that in a great many cases the samara or seed of the ash had been drawn into a worm's hole, and had there found moisture and other essential conditions of growth; while the same seeds lying dry upon the surface had not germinated. There can thus be no doubt that many seeds of all kinds are drawn under the surface of the ground, or covered by

the earth thrown up by worms. They are thus preserved from birds and various enemies, and are placed in the proper position for germination. The dead plant is perpetuated from its fallen panicle by the earthworm. An ash tree, or a whole forest of ash trees, may have been planted by earthworms.

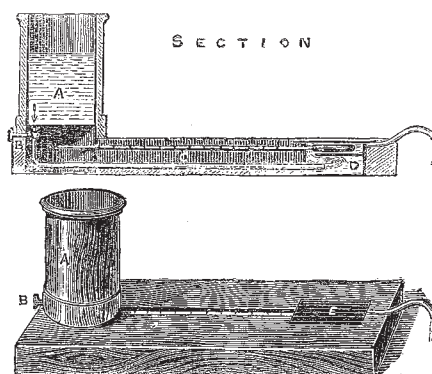
North Kimmundy, November 5 A. STEPHEN WILSON

## M. Alluard's Condensing Hygrometer

THE notice of the above instrument in last week's NATURE (p. 14) is an excellent illustration of the necessity for increased communication between the scientific men of all countries. The labour which is at present wasted by repeating what has been done before is enormous, and until international intercommunication is improved it must be so.

I quite agree with you in your appreciation of M. Alluard's hygrometer, but I think it is desirable to state that it is not the first in which "the part on which the deposit of dew is to be observed is a plane well-polished face A, of silver or gilt brass." The annexed engravings represent the form of plane-faced hygrometer invented by Mr. G. Dines, F.M.S., described by him in the *Meteorological Magazine* for October, 1871, and exhibited at the Brighton Meeting of the British Association, 1872.

The action is extremely simple; no ether is required nor any aspirator. Water colder than the dew point is the only requisite—it is poured into the reservoir A, passes through the regulating-tap B into the chamber D; it is, by the black diaphragm, thrown past the bulb of the thermometer C, and then allowed to escape. The cooled plane surface E of silver or black glass, is excessively thin, and the space between it and the thermometer-bulb is wholly occupied by the effluent water, so that the great essential



of all hygrometers, a true indication of the temperature of the cooled surface, seems to be reached. The plate E can be kept within  $0^{\circ}2$  or  $0^{\circ}3$  for a length of time by adjusting the screw B, and as the condensation usually takes an elliptical form over the thermometer-bulb, and in the middle of E, the advantage of an adjacent bright surface is usually attained. I am, however, not sure that M. Alluard's surrounding plate might not be a convenience, although for the reason above given I have not found it necessary.

G. J. SYMONS

62, Camden Square, N.W., November 2

## Optical Spectroscopy of the Red End of the Solar Spectrum

NATURE, dated August 2 (vol. xvi. p. 264), containing Prof. Piazzi Smyth's communication on "Optical Spectroscopy of the Red End of the Solar Spectrum," reached me on the 21st ult., when I had no leisure to avail myself of the outgoing mail and reply immediately to the subject of his last paragraph. Inquiry is there made of "anyone" (besides the Royal Society), in association more or less with my name, whether *more recent particulars* have been published, of the spectrum in question, than "those (*i.e.* my) Indian observations," "printed in the *Philosophical Transactions* so long ago as 1874" (*i.e.* 1875).

2. The Astronomer-Royal for Scotland is presumably in a better position to reply for "any one," than myself, located in latitude N.  $30^{\circ}$ , longitude E.  $78^{\circ}$ ; and so far as the inquiry relates to the Royal Society, his penultimate paragraph in itself furnishes the information sought, because the Society's publica-

tion prominently alluded to by himself *is the last* publication. As respects myself, I have printed no further particulars in addition to those which the Professor dismisses, briefly for the present, with the announcement of having discovered, "total contradictions" to certain "conspicuous features."

3. It is necessary to point out, that the designation for my observations adopted by the Professor of "the Royal Society's and Mr. Hennessey's high-sun series" suggests existence of the *divided* responsibility which is plainly disavowed in the "Advertisement" to the *Philosophical Transactions*, 1875, Part I., and elsewhere; for the professor can hardly intend that two separate and independent high-sun series taken on the Himalaya Mountains, one by the Royal Society, and the other by myself, have appeared in the *Transactions*.

4. I shall look forward with interest to the perusal of Prof. Piazzi Smyth's promised *complete* account of his sun-high observations at Lisbon; meanwhile I may be pardoned for my inability to follow his prompt and brief announcement of "total contradictions," written while yet on his return voyage.

J. B. N. HENNESSEY

N.W. Provinces, India, Dehra Doon, October 3

### Singing Mice

PERHAPS the following account of a singing mouse may be of interest to your readers:—

Last winter we occupied the rooms we now do at Menton. Early in February we heard as we thought the song of a canary, and fancied it was outside our balcony; however we soon discovered that the singing was in our *salon*, and that the songster was a mouse; at that time the weather was rather cold, and we had a little fire, and the mouse spent most of the day under the fender, where we kept it supplied with bits of biscuit; in a few days it became quite tame, and would come on the hearth in an evening and sing for several hours, sometimes it would climb up the chiffonier and ascend a vase of flowers to drink at the water, and then sit and sing on the edge of the table and allow us to go quite near to it without ceasing its warble; one of its favourite haunts was the wood basket, and it would often sit and sing on the edge of it. On February 12, the last night of the carnival, we had a number of friends in our *salon*, and the little mouse sang most vigorously much to their delight and astonishment and was not in the least disturbed by the talking. In the evening the mouse would often run about the room and under the door into the corridor and adjoining rooms, and then return to its own hearth; after amusing us for nearly a month it disappeared, and we suspect it was caught in a trap set in one of the rooms beyond. The mouse was small and had very large ears, which it moved about much whilst singing; the song was not unlike that of the canary in many of its trills, and it sang quite as beautifully as any canary, but it had more variety, and some of its notes were much lower, more like those of the bullfinch. One great peculiarity was a sort of double song, which we had now and then—an air with an accompaniment; the air was loud and full, the notes being low and the accompaniment quite subdued. Some of our party were sure that there was more than one mouse until we had the performance from the edge of the wood basket, and were within a yard or two of it. My son has suggested that many or all mice may have the same power, but that the notes are usually so much higher in the scale that, like the cry of the dormouse and the bat, they are at the verge of the pitch to which the human ear is sensitive; this may be so, but the notes of our mouse were so low and even the highest so far within the limits of the human ear, that I am inclined to think the gift of singing in mice is but of very rare occurrence.

JOSEPH SIDEROTHAM

Hotel de Menton, Menton, S. France, October 31

SEVERAL years ago I received some of these animals from a friend, and kept them in confinement for one or two months. The description which your correspondent gives of their performance leaves very little to be added by me, as in all respects this description agrees perfectly with my own observations. I write, however, to remark one curious fact about the singing of these mice, namely, that it seemed to be evoked by two very opposite sets of conditions. When undisturbed, the little animals used for the most part to remain quiet during the day, and begin to sing at night; but if at any time they were alarmed, by handling them or otherwise, whether during the day or night, they were sure to sing vigorously. Thus the action seemed to

be occasioned either by contentment or by fear. The character of the song, however, was slightly different in the two cases.

That these mice did not learn this art from singing birds there can be no doubt, for they were captured in a house where no such birds were kept. It may be worth while to add that this house (a London one) seemed to have been suddenly invaded, so to speak, by a number of these animals, for although my friend has lived in this house since the year 1862, it was only during a few months that singing mice were heard in it, and during these few months they were heard in considerable numbers.

Regent's Park, November 1

GEORGE J. ROMANES

### Meteor

THE following account of a meteor seen here may perhaps interest some of your readers:—

On October 29, at 8h. 1m. 30s. Greenwich mean time, a brilliant meteor exploded in right ascension 268°, declination + 60° (equator of 1855); it left a bright crooked train scarcely half a degree long, which remained visible for about ten seconds, and pointed towards  $\xi$  Draconis. The course of the meteor must have been directed downwards, almost exactly towards this observatory. The flash of the explosion was seen by the assistant-astronomer, Mr. Lohse, although he was sitting in such a position as to be unable to see the meteor directly.

Lord Lindsay's Observatory,  
Dun Echt, Aberdeen, November 3

RALPH COPELAND

### INTERNATIONAL POLAR EXPEDITION

IN February, 1875, when the Arctic Expedition was being prepared, I asked the First Lord of the Admiralty, in Parliament, whether, in view of the small value for scientific purposes of isolated observations in the Arctic regions, in comparison with simultaneous observations at different places, and in view, also, of the interest now taken in Arctic science by foreign Governments, he would postpone for one season the departure of the proposed Arctic Expedition, and in the interval communicate with foreign Governments with a view to the organisation of other expeditions to make observations simultaneously with our own at fixed times? The First Lord said that he considered the preparations for an expedition too far advanced to admit of this, and added: "I should regard the project of combination with other powers to attain the objects in view as one beset with difficulties"—in which, I think, he was in error. In the following month, when the Supplementary Estimate for the Arctic Vote was under discussion, I again drew the attention of the Government and Parliament to the advantages of simultaneous Arctic expeditions (see *Hansard*, vol. ccxxii. p. 1354), and in *Naval Science* for April of the same year, in an article on "Foreign Polar Expeditions," I drew still further attention to the matter, concluding with an extract from a paper by Capt. Weyprecht (who so greatly distinguished himself in the Austro-Hungarian polar expeditions of 1871 and 1872-74), in which he pointed out in the clearest manner the desirability of extending future Arctic researches far beyond mere geographical exploration, and pressing forward with our studies of magnetism, electricity, the best of meteorology, &c. "The solution of these questions cannot," he said, "be expected until all nations which claim to come up to the present high standard of civilisation unite to go hand in hand, setting aside all national rivalries. To bring about decisive scientific results it will be necessary to make a number of simultaneous observations, so conducted that they will furnish a yearly *résumé* of observations made in different parts of the Arctic regions with exactly similar instruments, and from exactly similar instructions."

Upwards of a year ago NATURE gave details of Weyprecht's project for the scientific exploration of the Polar regions. It was referred to on several occasions, and pointed out that Weyprecht's plan was the only satisfactory method of obtaining results of real and permanent value.